Claims

1. (original) A low-boron, high-barium concentration glass fiber composition comprising:

less than about 1 weight percent boron;

from about 5.5 to about 18 weight percent barium oxide;

from about 10 to about 14.5 weight percent alkali oxide;

from about 4 to about 8 weight percent alumina;

from about 1 to about 9 weight percent alkaline earth oxide, excluding barium oxide;

from about 2 to about 6 weight percent zinc oxide;

from about 0.1 to about 1.5 weight percent fluorine; and

a balance of the glass fiber composition being silica.

2. (original) The glass fiber composition of claim 1, wherein the boron is present as B_2O_3, alkali oxide is present as Na_2O or K_2O, and alkaline earth oxide is present as CaO or MgO.

3. (original) The glass fiber composition of claim 1, wherein the alkali oxide is present as Na_2O and K_2O and alkaline earth oxide is present as CaO and MgO.

4. (original) The glass fiber composition of claim 1, further comprising less than about 0.2 weight percent of one or more compounds selected from the group consisting of MnO, SrO, Li_2O, TiO_2, ZrO_2 and Fe_2O_3.

9. (currently amended) A low-boron, high-barium glass fiber composition comprising:

less than about 1 weight percent of boric oxide;

from about 6 to about 16 weight percent barium oxide;

from about 10 to about 12.5 weight percent of alkali oxide;

from about 5 to about 6 weight percent of alumina oxide;

from about 1 to about 9 weight percent alkaline earth oxide, excluding barium oxide;

from about 2 to about 5 weight percent zinc oxide;

from about 0.1 to about 1.0 weight percent fluorine; and

a balance of the composition being silica.

10. (original) The glass fiber composition of claim 9, wherein the glass fiber composition forms glass fibers having an average diameter of from about 0.1 μm to about 3.0 μm.

11. (original) The glass fiber composition of claim 9, wherein boron is present as B_2O_3, alkali oxide is present as Na_2O and K_2O, and alkaline earth oxide is present as CaO and MgO.

12. (original) The glass fiber composition of claim 9, further comprising less than about 0.2 weight percent of one or more compounds selected from the group consisting of MnO, SrO, Li_2O, TiO_2, ZrO_2, and Fe_2O_3.

13. (currently amended) A low-boron, high-barium glass fiber composition comprising:

less than about 1 weight percent of boron;

from about 6 to about 16 weight percent barium oxide;

from about 10 to about 12.5 weight percent of alkali oxide;

from about 5 to about 6 weight percent of alumina oxide;

from about 1 to about 9 weight percent alkaline earth oxide, excluding barium oxide;

from about 2 to about 5 weight percent zinc oxide;

from about 0.1 to about 1.0 weight percent fluorine;

a balance of the composition being silica; and

wherein the glass fiber composition forms glass fibers having an average diameter of from about 0.1 μm to about 8.15 μm.

14. (original) The glass fiber composition of claim 13, wherein the glass fibers have an average diameter of from about 0.1 μm to about 3.0 μm.